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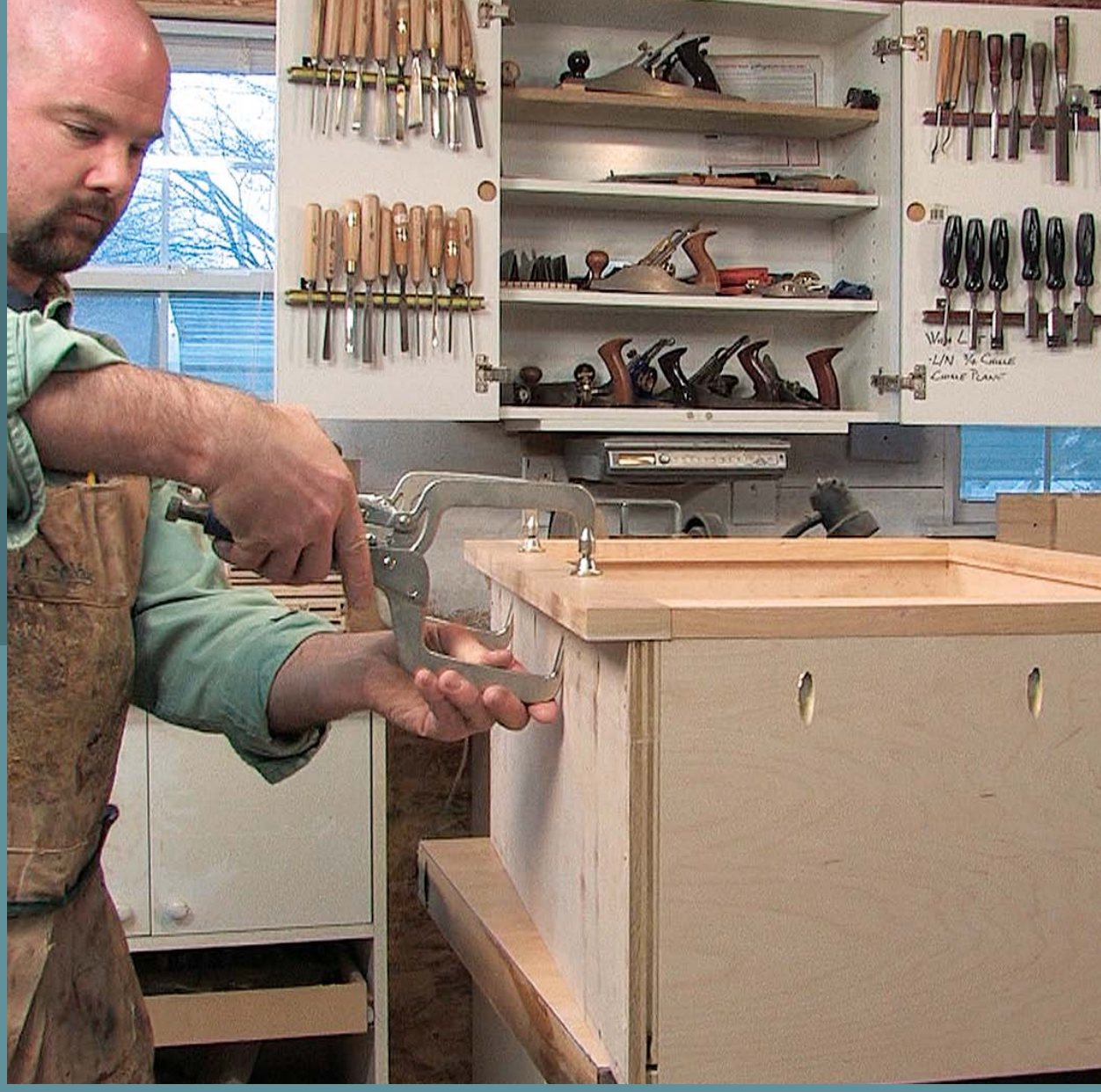


Building face frames

Adding face frames to your cabinets gives your kitchen project a more traditional look. Face frames add a distinct border to the boxes, doors, and drawers, conveying the feeling that these are more than just boxes. Cabinets with face frames resemble built-in furniture.

Traditional cabinetry relied heavily on a face frame for structure and durability. The face frame was a critical component, providing strength for the storage area behind it as well as supporting drawers, slides, hinges, and other hardware. With the modular cabinets we're building, face frames act as a decorative element, although they do add some strength and rigidity to the cabinet box.

In this chapter, you'll learn how to build face frames quickly, using a modern method of joinery for this traditional component. You'll also learn how to connect them to the cabinet boxes. I'll discuss the modifications you'll need to make to the boxes to accommodate face frames as well as a quick technique for dressing them up.

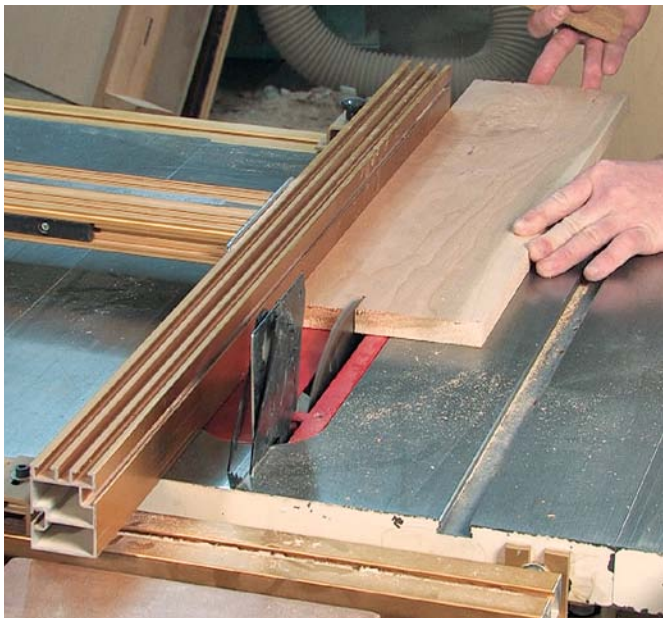
Face frames give cabinets a classic look that suggests they are more than just simple storage boxes. Face-frame cabinetry is particularly appropriate in traditional-style homes.

Designing face-frame cabinets

In frameless, or Euro-style, cabinetry, you plan the width of the cabinet for a particular spot in the kitchen. You measure carefully and then build the box to that size. With face-frame cabinetry, the frame assembly is actually wider than the cabinet behind it, so first you make the face frame to the desired width and then build the cabinet slightly narrower.

Face frames, as well as the frames of doors and finish panels, are made up of two components: Vertical members, called stiles, and horizontal members, called rails. While there's no set rule that states what width the stiles and rails should be, I've found that a width of 2 in. achieves a well-proportioned, consistent look.

The demonstration that follows shows how to build face frames for one cabinet. Where two adjacent cabinets meet, designing stiles of half the normal width allows you to maintain the same spacing across a bank of cabinets. Although this creates a pleasing, uniform look, you might prefer to double up full-width stiles.



All face-frame stock is an equal width, so you can rip stiles and rails at the same time. A well-proportioned width for most cabinet projects is 2 in.

Don't rely on your skill with a measuring tape for consistent length pieces. Measure once and use a stop block to ensure all parts are the same length.

What to do if you don't own a planer

If you don't own a planer, check with your lumber supplier to see if they offer planning to thickness as an additional service (usually at a minimal charge). Another option is to enroll in a night class at a local high school or community college. Before I had the full complement of woodworking machines, I would enroll in a woodworking course and use the school's machinery two or three nights a week for a very modest fee. As a bonus, there's always an experienced woodworker overseeing the course who can help out in a pinch.

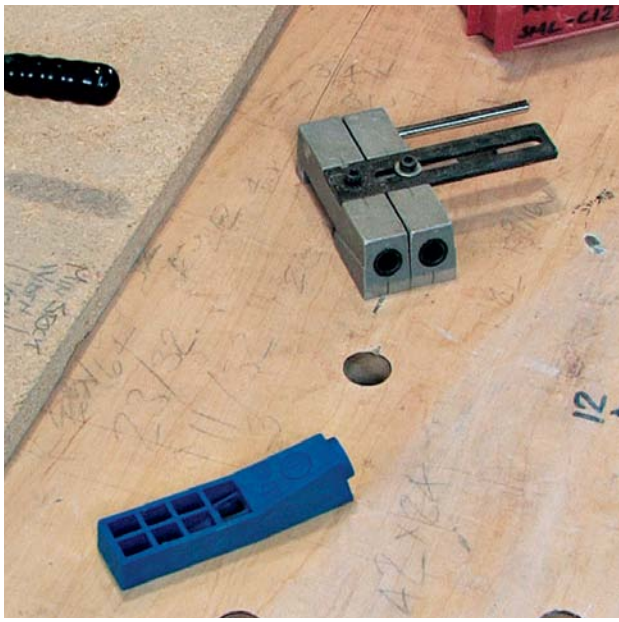
Cutting face-frame parts

To ensure flat face frames, be sure to use stock that is exactly the same thickness. I plane all of my lumber to ¾ in. The easiest way to ensure consistency is running the stock through a thickness planer. Joint one edge of the stock using a jointer or a long handplane (a #7 or #8 bench plane) to ensure the stock is straight. Then rip the stock to width. I generally make my face-frame components 2 in. wide, which I find visually pleasing. Plane, joint, and rip enough stile and rail stock to build all of the frames you'll need for the project.

Next, cut the stiles and rails. For each box, you'll need at least two stiles (upright members) and two rails (horizontal members). Cut your stiles to length using a miter gauge on the tablesaw or a stand-alone miter saw. The stiles should be cut ¾ in. longer than the height of the cabinet box. This provides a reveal to hide any imperfections in the cabinet box and adds an attractive detail.

Next cut the rails 4 in. shorter than the desired width of the face frame. You'll need one each for the top and bottom of the cabinet plus one for each drawer to act as a separator between it and a door or another drawer.

All pocket-hole jigs work on the same basic principle: a durable channel (in this case a hardened steel bushing) guides the drill bit as it cuts at a steep angle. Note the two-part step drill bit, especially designed for pocket holes.



Small portable pocket-hole jigs are inexpensive and useful for drilling cabinet sides to attach face frames.

Frame joinery

To join the rails and stiles, pocket screws provide a quick and secure connection. Even in multimillion-dollar homes, the pocket screw has become the standard for face-frame joinery.

You can use a drill press, Forstner bit, and shopmade angled auxiliary tables to drill pocket holes, but commercial jigs are affordable and easy to use. All of the commercial jigs work on the same principle—they provide a durable guide for the bit to drill a hole at a steep angle. End grain doesn't have the holding power of long grain, but driving the screw at an angle increases its purchase. The special two-step bit used to drill the holes has a smaller diameter pilot bit at the tip to drill the hole for the threaded part of the screw and a larger diameter auger-style bit to drill a larger hole to accommodate the screw head. The screws themselves have a pan head to seat securely at the bottom of the larger diameter hole.

Drill pocket holes in the rails in line with that piece's grain. Pocket holes placed across a stile create a weak point in the stile.

When assembling the joint, it's important to use the proper length fastener for the application and to keep

Always drill pocket holes in line with the grain. If you drill the holes cross grain (in the stiles), the joint will be weak.

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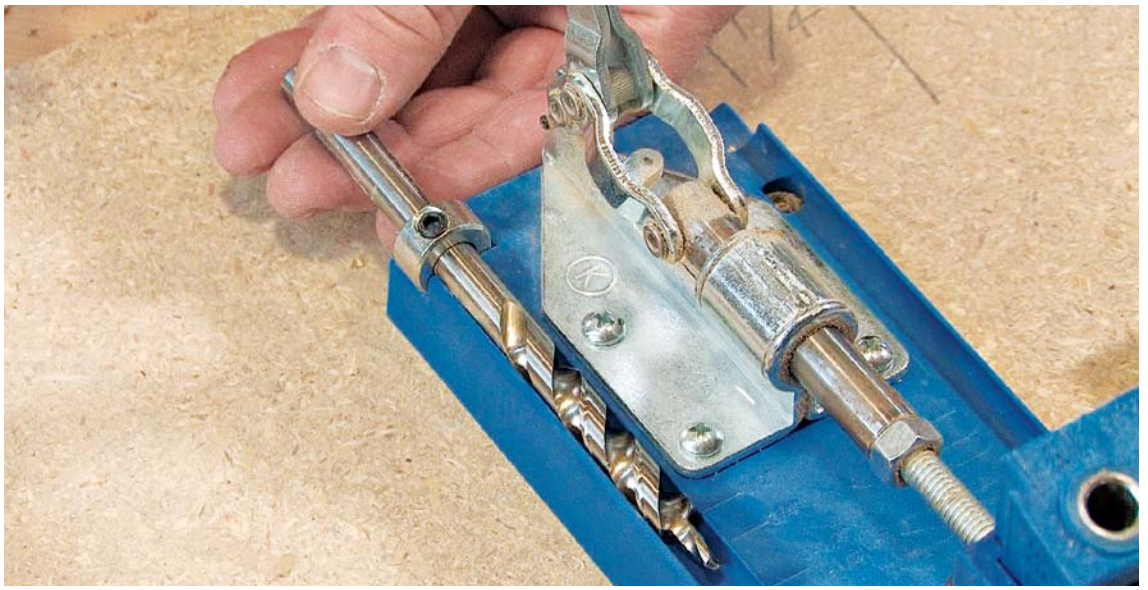
People often confuse which part of a frame is a rail and which part is a stile. One goes up and down and the other across. The way I remember is by thinking about a hand rail on a deck or stairway. The part I put my hand on is the rail, which is in a horizontal orientation. Therefore, the other component must be the stile.



The depth of the pocket hole is set by the position of the stop collar. In this jig, it's easily determined by laying the bit in the measuring scale.

Pan-head screws are meant to seat securely at the bottom of the pocket hole. Make sure to use the correct length screws for the job. For ¾-in. material, use 1¼-in. screws.

Angled plugs specially designed for concealing pocket holes are available in many common species.

the faces of the frame in the same plane. Clamping the frame assembly to your workbench is one way to ensure success. I prefer quick-adjusting clamps, made specifically for pocket screw joinery. Once the face frame is secured to the cabinet box, the pocket screw holes won't be noticeable, but if you want to conceal them, there are special angled plugs available to fill the hole.

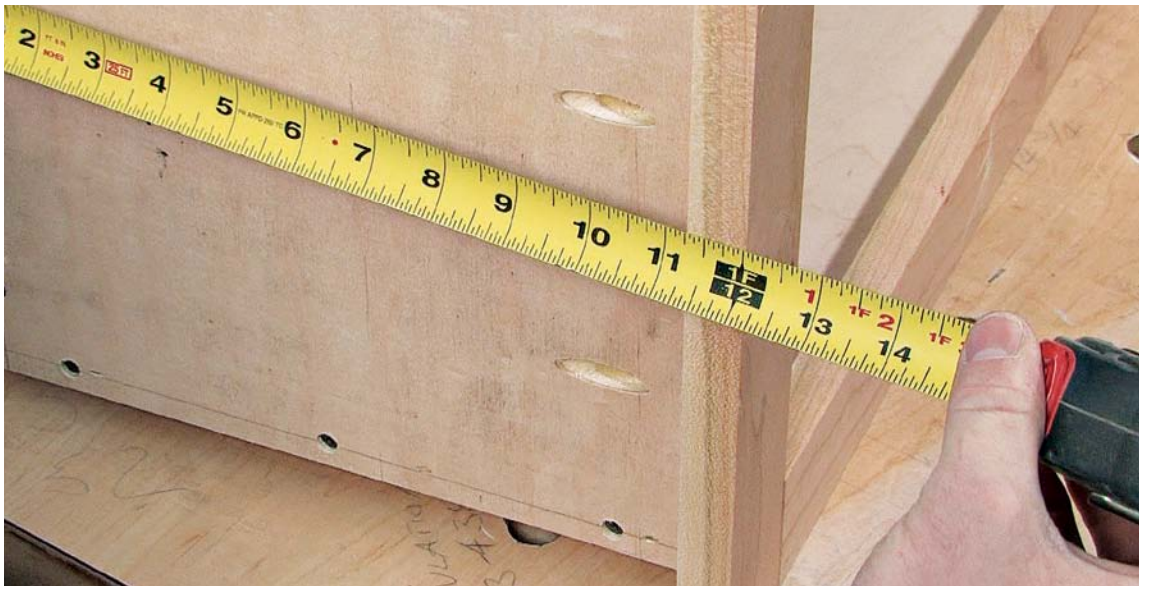
Alternate methods of joining face frames

If you don't want to use pocket screws, there are alternatives. Here are a few of the joinery methods for building the face frame that I've used in kitchen projects.

Butt joints are the easiest way to build a face frame. Align the pieces and reinforce the joint with screws from the outside of the stiles. Drill and countersink for 3-in. screws in line with any rail assembly. To conceal the joint, you can plug the screw hole with a wooden plug, and flush trim it.

Lap joints are a very strong option for building face frames. Half-laps can be cut at the tablesaw, router table, or even with hand tools, but they require precise setup to ensure that frame components align in the same plane.

Biscuit joints are a quick, easy way to join frame members, but the standard biscuit jointer and biscuits are too wide for face frames. Special face-frame biscuits and cutters are available for some plate joiners, but they are far more expensive than a pocket screw jig set.



You build your cabinet boxes ¾ in. shallower to accommodate the face frame. Here, we've reduced the depth of the wall cabinet box to 11¼ in. so that the overall depth remains the usual 12 in.

Dowel joints are an effective way to join face frames if you already own a doweling jig. Keep in mind that a high-quality doweling jig costs as much as a pocket-hole jig, but cutting and aligning dowel joints takes more time.

Mortise-and-tenon joints are the traditional way to make face frames. While incredibly strong, the joint is time-consuming to produce. Save it for your finest furniture.

Modifying cabinet boxes for face frames

Cabinets built for face frames are smaller than those for frameless cabinets. You'll reduce the depth of your cabinet sides by the thickness of the face frame, usually ¾ in. The cabinet box will be narrower than the overall width of the frame itself. I usually build cabinets with an overall width that is 2 in. narrower than the frame's overall width.

Unlike frameless cabinets, cabinets intended for face frames do not need to be edge-banded because the face frame covers the exposed edges of the plywood or Melamine. Nor do you need to add a stretcher to separate a drawer or door in the cabinet. Instead, you'll add additional rails to the face frames.

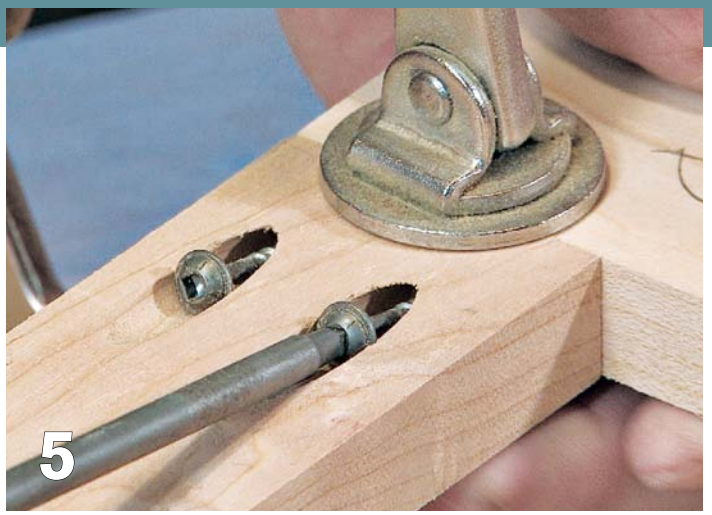
Cabinet and face-frame math

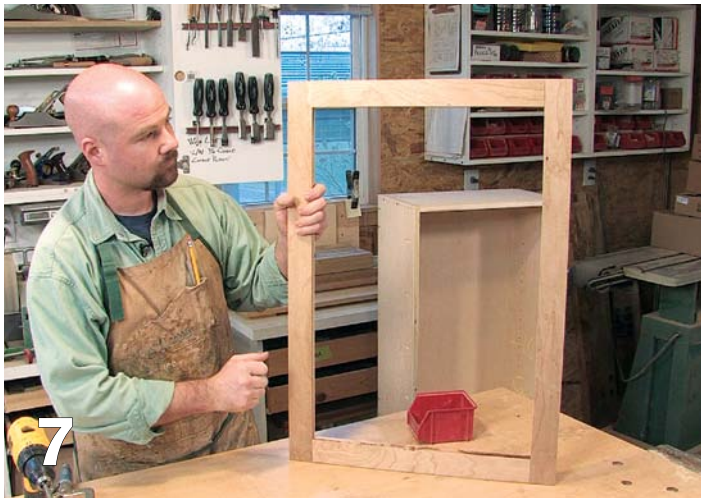
If you adjust the dimensions of the frame's stiles, for example, where two cabinets meet, you'll also need to adjust the size of the cabinet width accordingly. The cabinet's overall width should be 2 in. wider than the distance between the stiles. Here's how the math works out: To keep a ¼-in. reveal from the inside edge of the face frame to the inside of the cabinet box, just double the reveal to arrive at ½ in. Now add the thickness of the two sides to this measurement. Two sides of ¾-in. material yields approximately 1½ in. Now add ½ in. for the reveal. The result is 2 in. Since material thickness varies, make sure your face frames are made precisely to the width needed for the run of cabinets you've planned. Adjust your cabinet width based on the exact thickness of the material or use a slightly larger offset and stick with the 2-in. rule of thumb.

Joining frames with pocket screws

Drill two holes per rail for optimal strength and to keep the rails from twisting before the assembly is secured to the cabinet box. Your jig may differ from the one shown here. Be sure to familiarize yourself with your jig's operation by cutting some test pieces.

1. **Begin by laying out the pieces** and marking them with chalk so that you know which part goes where.
2. **Position the frame member in the jig** so you are drilling into the correct side (in this jig, so it faces you). Line it up to the marks in the jig and secure it with the clamp.
3. **Drill until the stop collar reaches the top of the guide bushing.** You may need to raise the bit to clear shavings before you reach the bottom of the hole. Repeat for the second hole.
4. **Secure the joint with the pocket-hole clamp.** Make sure to align the frame members precisely.
5. **Drive the screws** with the square-drive pocket-screw driver until the head seats at the bottom of the pocket hole.
6. **Work your way around the frame,** aligning the frame members, clamping, and driving screws.
7. **The finished frame** is square and strong.





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Don't measure when adding the drawer separator because you could be off a hair from side to side. Instead, use a spacer block to ensure consistent location of rails.

Attaching face frames to cabinets

While you could glue and nail the face frame to the cabinet, you'll need to fill the nail holes afterward. The putty never quite matches the finish, and you'll have to clean up the glue squeeze-out. Biscuits would also work but are fussy to align. A strong and efficient way to secure the face frame is to use pocket screws.

1. **Drill a series of pocket holes** along the front edge of the outside face of the cabinet sides, bottom, and top or top nailer. Space the holes 6 in. to 8 in. apart.
2. **Align the face frame** with the top edge of the cabinet, centered along the cabinet's width.
3. **Check the reveal** on the inside of the cabinet. It should be ¼ in. from the cabinet side to the inside of the frame.
4. **Clamp the face frame to the cabinet.** The proprietary clamps shown here hold the face frame to the cabinet while you attach it, but any long clamp that will reach from the front of the frame to the back of the cabinet will work too.
5. **Drive the pocket screws,** starting at the top and working your way down to the bottom of the case. Install the pocket screws evenly on both sides as you work. Check your reveals as you go, making sure they're even, which will ensure that the cabinet is square to the frame.

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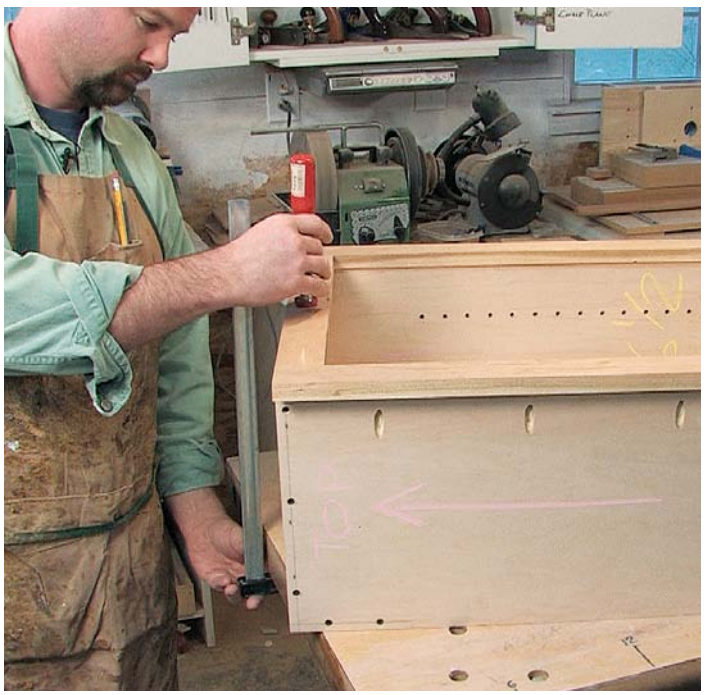
The easiest way to drill the pocket holes is to cut them before you assemble the cabinets. If you forget, you can drill the pocket holes after assembly. A small portable pocket screw jig is particularly handy for this purpose. The process is the same and works nearly as well as drilling before assembly, but it takes longer.



Although proprietary pocket-hole clamps are quick and efficient, you can also hold the face frame in position by clamping it to your workbench or assembly table.

Adding a bead

A simple applied bead can add a high-end decorative touch to your face frames. It's simple to make the bead stock with a router table outfitted with a ¼-in. beading bit. Begin with ¾-in. stock ripped into ¾-in.-wide strips. You'll get two strips of beading from each blank, so cut enough blanks to cover the inside perimeter of all the cabinet openings.

1. **Install a ¼-in. beading bit** into a table-mounted router. Adjust the bit height so the bottom edge of the bead is even with the router table, and adjust the router fence so it is even with the inside edge of the bead's radius.
2. **Rout a bead on one edge** of the blank. Flip the blank and cut another bead.
3. **Set the tablesaw rip fence** to a distance of ¼ in. Rip the bead from each side of the blank.
4. **Miter each end of the bead** to fit into the cabinet opening. It is critical that your cut is precisely 45 degrees to ensure miter joints without gaps.
5. **Attach the bead** flush to the back edge of the face frame with a thin line of glue. Use a small pin nailer to hold the bead in place while the glue dries; you can also clamp it.
6. **The finished bead.**

warning

When working with thin stock, use a push stick to keep your fingers away from spinning bits and rotating sawblades.

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